

**OFFICE OF THE DIVISION ENGINEER  
CORPS OF ENGINEERS, MISSISSIPPI VALLEY DIVISION  
P.O. BOX 80, 1400 WALNUT STREET  
VICKSBURG, MS 39181**

**CEMVR-ET-CO**

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**DIVISION BULLETIN NO. 2  
NAVIGATION CONDITIONS FOR 2003**

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**FOREWORD**

This description of navigation conditions to be expected during the current season is intended only as a general guide for the navigator. Detailed information regarding river and construction conditions and available maps may be obtained upon request to the proper authorities, as listed in the latter part of this bulletin.

For canalized portions of streams, data is presented by pools and for the portions not canalized, by reaches selected to include similar river conditions. The controlling depths given are applicable to low water conditions; ordinarily greater depths are available.

Mileage is measured upstream on the upper Mississippi River from the intersection of the Mississippi and Ohio Rivers and on other streams above their respective mouths.

**MISSISSIPPI RIVER, OHIO RIVER TO GULF OF MEXICO**

This lower section of the Mississippi River is a part of the Lakes-to-Gulf Waterway and is under the jurisdiction of the President of the Mississippi River Commission, Post Office Box 80, Vicksburg, Mississippi 39181-0080, who is also the Division Engineer, Department of the Army, Mississippi Valley Division. Parties desiring more detailed information should communicate with the Vicksburg Office.

**Cairo, Illinois to Baton Rouge, Louisiana.** The navigation channel of the Mississippi River between the mouth of the Ohio River at Cairo, Illinois and Baton Rouge, Louisiana, is approximately 726 miles long. Navigation in this section of the river is safe and easy throughout the year except for short periods in extremely cold winters, when the upper portions of this reach may contain floating ice for a few days. Between Cairo and Baton Rouge, a channel 9 feet deep and 300 feet wide is maintained. However, between Vicksburg and Baton Rouge, a channel at least 11 feet deep and more than 300 feet wide is normally available throughout the year. From January to June, when high river stages prevail, commensurably greater channel depths are available and a navigation channel of at least 14-foot depth and ample width is normally available from Cairo to Baton Rouge. The range between high and low water is about 50 feet at Cairo, 50 feet at Memphis, 60 feet at Vicksburg, 55 feet at Natchez, and 45 feet at Baton Rouge. Detailed data on additional depths normally available to navigation during the high-water seasons can be obtained from the President, Mississippi River Commission, Post Office Box 80, Vicksburg, Mississippi 39180-0080.

Maximum current velocities, which occur during the period of rising high stages, may be as great as 6 miles per hour. Velocities up to 9 1/2 miles per hour in short stretches of constricted reaches and at bridges have been observed during extreme high-water periods. At low-water stages, current velocities range from 2 to 4 miles per hour.

The navigation channel is maintained by dredging through the shoal reaches (crossing bars) as required during low water and by snagging operations to remove snags from the channel. Maintenance of the navigation channel is also aided by the stabilization of caving banks usually with articulated concrete revetment, construction of pile and stone dikes to constrict the channel, and improvement dredging to correct channel alignment.

Twelve fixed bridges cross the Mississippi River between its confluence with the Ohio River just below Cairo and Baton Rouge; four at Memphis, two at Vicksburg, two at Natchez and one at Caruthersville, Helena, Greenville, and just above Baton Rouge.

**Baton Rouge, Louisiana, to Gulf of Mexico. From Baton Rouge, Mile 232.4, above Head of Passes (AHP) to New Orleans,** a navigable channel of 45 feet deep and 500 feet wide is maintained. From New Orleans to the Head of Passes, a distance of approximately 95 miles, a navigable channel 45 feet deep and 750 feet wide is maintained. Between the Head of Passes and 17.5 miles below Head of Passes (BHP) along Southwest Pass, a navigable channel of 45 feet in depth and 750 feet wide is maintained before entering Bar and Jetty Channel, where maintenance dimensions are 45 feet deep and 600 feet wide.

Mileages on the Lower Mississippi River (Gulf of Mexico to the Ohio River) are measured upstream from the Head of Passes, 95 miles below New Orleans and 20 miles above the Gulf of Mexico via Southwest Pass.

The President of the Mississippi River Commission prepares biennially a folio of navigation maps covering the Mississippi River from Cairo, Illinois to the Gulf of Mexico, showing the general outline of navigation channel, navigation lights, bridges, aerial and submarine crossings, ferries, roads, levees, and general topography. This folio may be purchased from the District Engineer, US Army Engineer District, Vicksburg, 2101 North Frontage Road, Vicksburg, Mississippi 39180-5191, or the District Engineer offices at Memphis, Tennessee; and New Orleans, Louisiana, at a cost of \$20.00 per copy, plus \$2.00 shipping.

**Port Allen - Morgan City Route.** This is an alternate route of the Gulf Intracoastal Waterway between the Mississippi River (mile 228.3) at Baton Rouge, and Morgan City, Louisiana (mile 95.5 west of Harvey Lock at New Orleans). This route provides a channel 12 feet deep and 125 feet wide and is 64.1 miles long. It is about 161 miles shorter than the route via Harvey Lock at New Orleans.

**Old River and Atchafalaya River.** This route is the connecting waterway between the Mississippi River (mile 304 AHP) and the Gulf Intracoastal Waterway at Morgan City (mile 95.5 west of Harvey Lock, New Orleans, Louisiana). It provides channel dimensions of 12 feet by 125 feet. The length of the waterway via Old River and the Atchafalaya River is 123 miles and is approximately 177 miles shorter to Morgan City than via Harvey Lock at New Orleans.

There are ten bridges crossing the Atchafalaya River: two at Simmesport, one at Melville, three at Krotz Springs, one at Whiskey Bay Pilot Channel, and three at Morgan City.

Higher current velocities may be expected at high water stages and particularly at the upper bridges. Downbound vessels should use extreme caution in navigating the bridges. At low stages, moderate velocities allow easier navigation. Also, there are several overhead pipeline crossings.

The controlling navigation depth of this channel is usually at Three Rivers. Here, the navigation channel is maintained by dredging and depths from 9 to 12 feet are available, dependent upon river stages. The Grand and Six-mile Lake section is marked by unlighted reflector type buoys and several shorelights. The channel above Grand Lake is marked by mile posts and direction signs.

**Mississippi River - Gulf Outlet.** This project authorized by the Act of 29 March 1956 and completed in June of 1965, is a 36-foot deep by 500-foot wide dredged channel from New Orleans southeast to the Gulf of Mexico. A shorter, straighter waterway, it is free from many of the adverse conditions affecting Mississippi River navigation.

#### **MISSISSIPPI RIVER, OHIO RIVER TO MINNEAPOLIS, MINNESOTA**

The Mississippi River between the Ohio River and the Soo Line Railway Bridges at Minneapolis, Minnesota, 857.6 miles, has been improved to provide a waterway with least depth of 9 feet and with widths suitable for long-haul common-carrier service. Between the Ohio River, mile 0, and Locks No. 27 at Granite City, Illinois, mile 185.1 (a short distance below the Missouri River), improvement is being accomplished by bank protection and dikes to constrict and regulate the channel, supplemented by dredging as necessary. At present, a controlling depth of 9 feet between the Ohio River and Locks No. 27 is normally available year round. Controlling depths may temporarily become less than 9 feet at certain localities. Controlling bars are removed by dredging as promptly as practical, until ice formation prevents dredging.

Lock No. 27 at the lower end of the Chain of Rocks Canal (located on the left bank between miles 184.0 and 194.0) provides a 110-foot by 1200-foot main lock on the left bank of the canal and 110-foot by 600-foot auxiliary lock on the right bank of the canal.

Improvement between Alton and Minneapolis has been accomplished by a canalization plan which includes 28 locks and dams, (including Lock No. 27 there are 29 Locks and Dams) and now affords a 9-foot channel throughout. (For locations of structures refer to tables on the last pages of this bulletin.) Locks have widths of 110 feet, except at upper and lower St. Anthony Lock sites and the twin locks at Site No. 1, Minneapolis, which have widths of 56 feet. Controlling lock lengths are 400 feet at these three locks sites. Lock No. 19, Keokuk, Iowa, and Melvin Price Lock, Alton, Illinois, are 110 feet by 1200 feet long. All other locks provide a usable length of 600 feet. A twin lock at Lock 15, is 360 feet by 110 feet at mile 482.9.

At controlled pool elevations, depths of 10 feet or more are available over miter-gate sills, except the riverward lock at Lock No. 1, Minneapolis, Minnesota (7.5 feet). As a result of the construction of Dam No. 27 (a low water dam in old river at mile 190.3), the lower sill at the Melvin Price Lock provides a minimum of 18 feet at low water. Lock No. 19, Keokuk, Iowa, affords 13.0 feet over its lower miter gate sill.

At Locks and Dams No. 2 through 22, flashing red lights have been installed to mark the 150-foot restricted lines below the gate sections of the dams and the 600-foot lines above the dams. At Locks and Dams 24 through 26, the lights are 600 feet above and 300 feet below the dams.

Channel widths generally 200-feet to 300-feet are available throughout the Upper Mississippi River. The United States Coast Guard marks the channel with aids to navigation lights, daymarks, and lighted and unlighted buoys. During the winter months, unlighted buoys replace the lighted buoys.

Average navigation seasons for various reaches of the Mississippi River within this Division are:

- Ohio River to Keokuk, IA\* . . . . . All Year
- Keokuk, IA, to Rock Island, IL. . . . . 01 March-31 Dec.
- Rock Island, IL, to Minneapolis, MN. . . . .20 March-05 Dec.

\*This section has usually been open to navigation throughout the winter months. During periods of extremely cold weather ice may be encountered in December, January, and February, but complete stoppage seldom occurs except in the pool above Melvin Price Lock, mile 200.8, where severe weather may stop traffic for duration of the cold wave.

Controlling vertical clearances stated in the following Mississippi River pool descriptions are obtained at center of the channel span, unless otherwise noted. The names and location of the structures involving these clearances are shown in tabular form on the last pages of this bulletin.

Flashing light traffic signal systems are installed and in operation at all sites in the North Central and Lower Mississippi Valley Divisions. These signals will be operated in accordance with paragraph (e) of the publication entitled "Regulations to Govern the Use, Administration and Navigation of the Ohio River, Mississippi River above Cairo, Illinois and Their Tributaries."

**"FEDERAL REGULATIONS"**

Pursuant to the provisions of Section 5 of the River and Harbor Act of 1 August 1894 (2 Stat. 362; 33 U.S.C. 499), Section 117.33 of the Code of Federal Regulations, Title 33, Chapter I, the operation of drawbridges during a major disaster of civil defense emergency is regulated as follows:

\* \* \* \* \*

**Section 117.33 Closure of Draw for Natural Disasters or Civil Disorders**

Drawbridges need not open for the passage of vessels during periods of natural disasters or civil disorders declared by the appropriate authorities unless otherwise provided for in Subpart B or directed to do so by the District Commander.

**Section 117.35 Operation During Repair or Maintenance**

- (a) When operation of the draw must deviate from the regulations in this part for scheduled repair or maintenance work, the drawbridge owner shall request approval from the District Commander at least 30 days before the date of the intended change. The request shall include a brief description of the nature of the work to be performed and the times and dates or requested changes. The District Commander's decision is forwarded to the applicant within five working days of the receipt of the request. If the request is denied, the reasons for the denial are forwarded with the decision.
- (b) When the draw is rendered inoperative because of damage to the structure or when vital, unscheduled repair or maintenance work shall be performed without delay, the drawbridge owner shall immediately notify the District Commander and give the reasons why the draw is or should be rendered inoperative and the expected date of completion of the repair or maintenance work.
- (c) All repair or maintenance work under this section shall be performed with all due speed in order to return the draw to operation as soon as possible.
- (d) If the operation of the draw will be affected for periods of less than 60 days, the regulations in this part will not be amended. Where practicable, the District Commander publishes notice of the temporary deviations from the regulations in this part in the Federal Register and Local Notices to Mariners. If operation of the draw is expected to be affected for more than 60 days, the District Commander publishes temporary regulations covering the repair period.

**Section 117.37 Opening or Closure of Draw for Public Interest Concerns.**

- (a) For reasons of public health or safety or for public functions, such as street parades and marine regattas, the District Commander may authorize the opening or closure of a drawbridge for a specified period of time.
- (b) Requests for opening or closure of a draw shall be submitted to the District Commander at least 30 days before the proposed opening or closure and include a brief description of the proposed event or other reason for the request; the reason why the opening is required, and the times and dates of the period the draw is to remain open or closed.
- (c) Approval by the District Commander depends on the necessity for the opening or closure, the reasonableness of the times and dates, and the overall effect on navigation and users of the bridge.

**Section 117.31 Closure of Draw for Emergency Vehicles.**

When a drawtender is informed by a reliable source that an emergency vehicle is due to cross the draw, the drawtender shall take all reasonable measures to have the draw closed at the time the emergency vehicle arrives at the bridge.

Pursuant to the provisions of Section 5 of the River and Harbor Act of 1 August 1894, (28 Stat. 352, 33 U.S.C. 499), Sections 117.667, 117.671, 117.1099, and 117.1103, Chapter I, Title 33, Code of Federal Regulation governing the operations of bridges across the Upper Mississippi River and its tributaries, the operations of bridges across the Upper Mississippi River between Lock and Dam No. 10 and Lock and Dams No. 1, and the St. Croix River, Wisconsin and Minnesota, between the mouth and Bayport, Minnesota, are regulated as follows:

\* \* \* \* \*

**Section 117.667 (117.1099) St. Croix River.**

- (a) The draws of the Burlington Northern Railroad Bridge, mile 0.2, and the US 16-61 Bridges, mile 0.3, all at Prescott, and the Chicago and Northwestern Railroad Bridge, mile 17.3 at Hudson, shall open on signal; except that, from December 15 through March 31, the draws shall open on signal if at least 24 hours notice is given.
- (b) The draw of the S36 Bridge, mile 23.4 at Stillwater, shall open on signal as follows: from October 16 through May 14, if at least 24 hours notice is given.

**Section 117.671 (117.1103) Upper Mississippi River.**

- (a) The draws of all bridges between Lock and Dam No. 10, mile 615.1, and Lock and Dam No. 2, mile 815.2, shall open on signal; except that, from December 15 through the last day of February, the draws shall open on signal if at least 24 hours notice is given.
- (b) The draws of all bridges between Lock and Dam No. 2, mile 815.2, and Lock and Dam No. 1, mile 847.6, shall open on signal; except that, from December 15 through the last day of February, the draws shall open on signal if at least 12 hours notice is given.

General Information: River conditions and controlling bridge clearance on the Mississippi River, Ohio River to Minneapolis, Minnesota, are as follows:

**Upper St. Anthony Pool - (mile 857.6 to 853.7)**

River conditions: Controlling channel depths: about 9 feet.  
Current velocities: 1/2 to 2 miles per hour.

Controlling clearances: 1. Horizontal - 121 feet (Upper Great Northern Railroad Bridge, mile 854.4).  
2. Vertical - 23.3 (above normal pool) at 3rd Avenue Bridge, mile 853.9, Minneapolis, Minnesota.

General: Mooring cells are located just upstream from the lock on the right margin of the channel at mile 854.6.

**Lower St. Anthony Pool (mile 853.7 to 853.4)**

River conditions: Controlling channel depths: about 9 feet.  
Current velocities: 1/2 to 2 miles per hour in navigable channel. Greater velocities may be encountered outside the navigation channel during high flows.

Controlling clearances: 1. Horizontal - 56 feet.  
2. Vertical - 24.5 feet (above 40,000 cfs).

Both clearances at the Burlington Northern Railroad Bridge, mile 853.7, Minneapolis, Minnesota.

General: Mooring cells are located just upstream from the right margin of the channel at mile 853.5.

**Pool No. 1 (mile 853.4 to 847.6)**

River conditions: Controlling channel depths: more than 9 feet.

Current velocities: 1/2 mile per hour at ordinary stages; about 5 miles per hour at extreme high stages.

Controlling clearances: 1. Horizontal - 160 feet (Northern Pacific Railroad, Mile 853.0.

2. Vertical - 28.6 feet above normal pool (Cedar Avenue, Mile 853.1)

Both clearances at the Burlington Northern Railroad Bridge, mile 853.0, Minneapolis, Minnesota.

**Pool No. 2 (mile 847.6 to 815.2)**

River conditions: Controlling channel depths: about 9 feet

Current velocities: 1 mile per hour at ordinary stages; 3 miles per hour at high stages.

Controlling clearances: 1. Horizontal - 158 feet.

2. Vertical - 59.6 feet above normal pool.

Both clearances are at the Robert Street Highway Bridge, mile 839.2, St. Paul Minnesota.

General: Openings to permit passage of small boats have been made at the head and foot of Newport Island Slough, mile 831. Commercial barge cleaning services are available on the right bank, miles 838.0 and 840.5. Potable water is available at St. Paul Lambert Landing mile 839.0.

**Pool No. 3 (mile 815.2 to 796.9)**

River conditions: Controlling channel depths: about 9 feet.

Current velocities: 1 mile per hour at ordinary stages; 3 miles per hour at high stages.

Controlling clearances: 1. Horizontal - 307.0 feet (Chicago, Milwaukee, St. Paul, and Pacific Railroad Bridge, mile 813.7, Hastings, Minnesota).

2. Vertical - 60 feet above normal pool (Chicago, Milwaukee, St. Paul and Pacific Railroad Bridge, Mile 813.7).

General: Potable water is available within 200 feet of docking facilities at Hastings and Prescott. (See page 25, Appendix A, for information concerning St. Croix River, mouth at mile 811.3).

**Pool No. 4 (mile 796.9 to 752.8)**

River conditions: Controlling channel depths: about 9 feet.

Current velocities: 1 mile per hour at ordinary stages; 4 miles per hour at high stages.

Controlling clearances: 1. Horizontal - 402.5 feet (Wabasha, Minnesota) Highway Bridge, mile 760.2.

2. Vertical - 62.49 feet above normal pool (Wabasha Highway Bridge, mile 760.2)

General: Pool includes Lake Pepin. Levees exist at Red Wing, Minnesota (mile 790.7), and Wabasha, Minnesota (mile 760.0).

**Pool No. 5 (mile 752.8 to 738.1)**

River conditions: Controlling channel depths: about 9 feet.

Current velocities: 1 mile per hour at ordinary stages, 3 miles per hour at high stages.

Controlling clearances: 1. Horizontal - No bridges cross this pool.

2. Vertical - 72.3 feet above high water of 1965, which was 20.7 feet on the Winona gage.  
(Aerial wire crossing, mile 750.5).

**Pool No. 5A (mile 738.1 to 728.5)**

River conditions: Controlling channel depths: about 9 feet.

Controlling velocities: 1 mile per hour at ordinary stages; 3 miles per hour at high stages.

Controlling clearances: No bridges or aerial wires cross this pool.

General: The Corps of Engineers' Service Base is at Fountain City Bay (mile 733.3), a short distance above Fountain City, Wisconsin.

**Pool No. 6 (mile 728.5 to 714.3)**

River conditions: Controlling channel depths: about 9 feet.

Controlling velocities: 1 mile per hour at ordinary stages; 3 miles per hour at high stages.

Controlling clearances: Aerial wires crossing at miles 728.2 and 725.1, elevation 727.5 M.S.L.

Controlling bridge clearances: 1. Horizontal - 200 feet (Winona Railroad Drawbridge, mile 723.8, Winona, Minnesota).

2. Vertical - 64.2 feet above normal pool. (Winona, Minnesota) Highway Bridge, (mile 725.9).

**Pool No. 7 (mile 714.3 to 702.5)**

River conditions: Controlling channel depths: about 9 feet.

Controlling velocities: 1 mile per hour at ordinary stages; 3 miles per hour at high stages.

Controlling clearances: No bridges or aerial wires cross this pool.

**Pool No. 8 (mile 702.5 to 679.2 including Black River mile 0 to 1.4)**

River conditions: Controlling channel depths: about 9 feet

Controlling velocities: 1 mile per hour at ordinary stages, 3 miles per hour at high stages.

Controlling clearances excluding Black River, mile 0 to 1.4:

1. Horizontal - 150 feet (Chicago, Milwaukee, St. Paul & Pacific Railroad Bridge, mile 699.8, above LaCrosse, Wisconsin).

2. Vertical - Dresbach Highway Bridge, I-90, mile 701.7.

Clearances: Horizontal main channel span, 411.0 feet.

Vertical main channel span at center of span, 62.7 feet above normal pool.

Controlling clearances for the Black River (mile 0 to 1.4):

1. Horizontal - 127 feet (Chicago, Milwaukee, St. Paul, & Pacific Railroad Bridge, mile 1.0, LaCrosse, Wisconsin).

2. Vertical - No limit.

Note 1: Two hours advance notice is required to open the bridge.

Note 2: The Black River is navigable for small craft to Onalaska Dam, mile 5, with a minimum depth of 4 feet. The highway bridge at mile 1.9 provides vertical clearance of 12.9 feet above flat pool (elevation 631), and zero clearances above high water of 1965, which was 17.9 feet on the LaCrosse gage. Twenty-four hours notice is required to open this bridge. Bridge replaced with non-opening bridge at Clinton St. Also a non-opening bridge for I-90 at mile 3.5. The available elevation and clearance is on file at the Wisconsin Department of Transportation.

LaCrosse Highway Bridge Clearances: 1. Horizontal - main channel span, 462.0 feet.

2. Vertical - main channel span, 67.3 feet above normal pool, and 97.4 feet above zero of gage,  
Mile 696.8. Miles from Cairo: 697.6

General: Paved levee at LaCrosse, Wisconsin (mile 697.9), affords cargo transfer point. Potable water is available within 100 feet of docking facilities. Servicing facilities for small craft are available at North LaCrosse on the Black River, 1.7 miles above its mouth.

**Pool No. 9 (mile 679.2 to 647.9)**

River conditions: Controlling channel depths: about 9 feet.

Controlling velocities: 2 miles per hour at ordinary stages; 3 miles per hour at high stages.

Controlling clearances: 1. Horizontal - 640 feet.

2. Vertical - 67.5 feet above normal pool.

Both clearances are at the Lansing, Iowa, Highway Bridge, mile 663.4.

**Pool No. 10 (mile 647.9 to 615.1)**

River conditions: Controlling channel depths: about 9 feet; however, east channel at Prairie du Chien is about 8 feet. Channel in lower section of pool is marked with permanent markers.

Controlling velocities: about 2 miles per hour at ordinary stages; 4 miles per hour at high stages.

Controlling clearances for main channel: 1. Horizontal - 451.5 feet, pier to pier.  
2. Vertical - 60.0 feet above normal pool.

Both clearances are at Marquette-Prairie du Chien Main Channel Bridge, mile 634.9.

Controlling clearances for east channel: 1. Horizontal - 338.0 feet.  
2. Vertical - 60 feet above normal pool.

Both clearances are at Marquette Highway Bridge at Prairie du Chien, Wisconsin, mile 634.8.

**Pool No. 11 (mile 615.1 to 583.0)**

River conditions: Controlling channel depths: about 9 feet.

Controlling velocities: 2 miles per hour at ordinary stages; 4 miles per hour at high stages.

Controlling clearances: 1. Horizontal - No bridges cross this pool.  
2. Vertical - No restrictions over this pool.

General: There is a guard wall extending upstream from the river wall and a guide wall extending upstream from the landwall of Lock 11. There is a deflection dike above this lock.

**Pool No. 12 (mile 583.0 to 556.7)**

River conditions: Controlling channel depths: about 9 feet.

Controlling velocities: about 2 miles per hour at ordinary stages; 4 miles per hour at high stages.

Controlling clearances: 1. Horizontal - 146.8 feet (Chicago Central & Pacific Railroad Co., mile 579.9, Dubuque, Iowa).  
2. Vertical - 64 feet above normal pool. (Mid 300 feet, Julien Dubuque Highway Bridge, mile 579.3).

Note: In closed position the channel span of the Chicago Central and Pacific Railroad Bridge provides a vertical clearance of 19.9 feet above flat pool.

General: The Coast Guard Base and Docks are located in the harbor of refuge at Dubuque, Iowa (mile 579.5).

General: New mooring cell, mile 557.5, approximately, on right descending bank.

**Pool No. 13 (mile 556.7 to 522.5)**

River conditions: Controlling channel depths: about 9 feet.

Controlling velocities: 2 miles per hour at ordinary stages; 4 miles per hour at high stages.

Controlling clearances: 1. Horizontal - 154 feet (Soo Line Railroad Company Railroad Bridge, mile 535.0, Sabula, Iowa).  
2. Vertical - 63.5 feet above normal pool. (Sabula Railroad Bridge, Iowa draw, Mile 535.0)

Note: In closed position, the channel span of the Soo Line Railroad Bridge provides vertical clearance of 18.3 feet above normal pool.

General: A mooring cell is on the left of the channel at mile 523.7, above Lock 13. Dike extension of upper guide wall of the lock is equipped with mooring posts at the upper end and mooring rings along the entire face. Navigators are cautioned not to land or trespass on U.S. Military Reservation which extends along the left bank between miles 545.2 and 558.5.

**Pool No. 14 (miles 522.5 to 493.3)**

River conditions: Controlling channel depths: about 9 feet.

Controlling velocities: 2 miles per hour at ordinary stages; 5 miles per hour at high stages.

Controlling clearances: 1. Horizontal - 177.5 feet (Chicago & Northwestern Railroad Bridge, mile 518.0, Clinton, Iowa).

2. Vertical - 60 feet above flat pool (I-80 Bridge, mile 495.4)

Note 1: In closed position the channel span of the Chicago & Northwestern Railroad Bridge provides vertical clearance of 18.7 feet above normal pool.

Note 2: The secondary channel in Beaver Slough at Clinton, Iowa, was last dredged in 1975 to project depth and 250 feet wide. Aerial wires cross Beaver Slough with a clearance of 42 feet above the high water of 1965.

Note 3: Old Lock 14 in LeClaire Canal is open to small boat traffic from Memorial Day through mid September. The canal was dredged to 5 feet at flat pool and is buoyed with two can and two nun buoys at the head of Smith's Island. In addition, a notch approximately 60 feet wide exists on the lateral dam at the head of Smith's Island, mile 494.4, allowing recreational craft to navigate in and out of the canal. The notch is marked with a rock pile on the upstream end and on the downstream end. At present, a small shoal exists in the canal from the marked entrance (notch) to approximately 200 feet downstream. Depths in this area are as shallow as 3.5 feet. Corps of Engineers special purpose buoys are located throughout the Canal. The Canal is a "NO WAKE" Zone.

General: There is a guard wall extending upstream from the river wall to Lock No. 14. Andrews Anchorage (right bank, mile 519.0) has 2 tractors with lift booms of 4 and 5 ton capacity.

**Pool No. 15 (mile 493.3 to 482.9)**

River conditions: Controlling channel depths: about 9 feet.

Controlling velocities: about 2 miles per hour at ordinary stages; 6 miles per hour at high stages.

Controlling clearances: 1. Horizontal - 710 feet.

2. Vertical - 66.1 feet above normal pool (Iowa-Illinois Memorial Dual Bridges, mile 485.8).

General: A submerged rock and cement dike separate the main channel from the old Moline Lock, mile 485.1 to the junction buoy at mile 488.1.

**Pool No. 16 (mile 482.9 to 457.2)**

River conditions: Controlling channel depths: about 9 feet.

Controlling velocities: about 2 miles per hour at ordinary stages; 4 miles per hour at high stages.

Controlling clearances: 1. Horizontal - 197.9 feet (Davenport, Rock Island & Northwestern Railroad Bridge, mile 481.4, Rock Island, Illinois).

2. Vertical - 62.5 feet above normal pool. (Interstate 280 Bridge mile 478.3)

Note 1: In closed position the channel span of the Government Bridge at Rock Island (mile 482.9) provides a vertical clearance of 23.8 feet above normal pool, and the Davenport and Northwestern Railroad Bridge, mile 481.4 provides vertical clearance of 25.7 feet above normal pool.

Note 2: At the Rock Island Centennial Highway Bridge, mile 482.1, project depth exists under only the Illinois channel span.

Note 3: The U.S. Army Corps of Engineers, Rock Island District office is located at Lock 15, mile 482.9.

General: There is a guard wall extending upstream from the river wall of Lock No. 16. Illinois and Mississippi Canal enters at mouth of the Rock River (mile 479.1). See page 28 for further information concerning this canal.

**Pool No. 17 (mile 457.2 to 437.1)**

River conditions: Controlling channel depths: about 9 feet.

Controlling velocities: 2 miles per hour at ordinary stages; 4 miles per hour at high stages.

Controlling clearances: 1. Horizontal - 500 feet.

2. Vertical - 65.0 feet above normal pool, (Highway 92 Bridge, mile 455.9).

General: Dike extension of upper guide wall of lock is equipped with mooring rings.

**Pool No. 18 (mile 437.1 to 410.5)**

River conditions: Controlling channel depths: about 9 feet.

Controlling velocities: 2 miles per hour at ordinary stages; 4 miles per hour at high stages.

Controlling clearances: 1. Horizontal - 400 feet at Trans-Action & Associates Bridge remains, mile 428.0, Keithsburg, Illinois.  
2. Vertical - No restriction on the pool.

General: A guard wall extends upstream from the river wall of the lock.

**Pool No. 19 (mile 410.5 to 364.2)**

River conditions: Controlling channel depths: about 9 feet.

Controlling velocities: about 2 miles per hour at ordinary stages; 3 miles per hour at high stages.

Controlling clearances: 1. Horizontal - 153 feet, (Burlington Railroad Bridge, mile 403.1).  
2. Vertical - 60.09 feet above normal pool (New Burlington Highway Bridge, mile 404.19).

Note: In a closed position, the channel span of the Burlington Northern Railroad Bridge provides a vertical clearance of 21.5 feet above flat pool, and the Ft. Madison Railroad Bridge provides vertical clearance of 13.1 feet above normal pool.

General: Mooring piers are located near the lower approach and above the upper approach to the forebay of Lock No. 19. Forebay is protected by concrete dike extending upstream from Union Electric Power plant.

**Pool No. 20 (mile 364.2 to 343.2)**

River conditions: Controlling channel depths: about 9 feet.

Controlling velocities: 2 miles per hour at ordinary stages; 4 miles per hour at high stages.

Controlling clearances: 1. Horizontal - 158 feet (Keokuk, Iowa, Municipal Railway and Highway Bridge, mile 364.0).  
2. Vertical - 67.3 feet above normal pool (Keokuk Highway Bridge, mile 363.9).

Note: In a closed position, the channel span of the Keokuk Drawbridge provides 25.2 feet above normal pool.

General: A guard wall extends upstream from the river wall of the lock. A Coast Guard base and dock is located at mile 363.6, Keokuk, Iowa. A deflection cell is now in place on the downstream side of Lock 20.

**Pool No. 21 (mile 343.2 to 324.9)**

River conditions: Controlling channel depths: about 9 feet.

Controlling velocities: about 2 miles per hour at ordinary stages; 4 miles per hour at high stages.

Controlling clearances: 1. Horizontal - 300 feet, Burlington Northern Railroad, Mile 328.0).  
2. Vertical - 61.38 feet above pool (New Quincy Highway Bridge, Mile 327.2).

General: A guard wall extends upstream from the river wall of Lock No. 21, and a levee with mooring facilities is located approximately 1/2 mile upstream from the lock. A flow deflection dike is located upstream of Lock No. 21, left descending bank, mile 325.5. A ferry operates between Canton, Missouri, and the Illinois shore (mile 342.6) for transportation of automobiles and light trucks.

**Pool No. 22 (mile 324.9 to 301.2)**

River conditions: Controlling channel depths: about 9 feet.

Controlling velocities: about 2 miles per hour at ordinary stages; 4 miles per hour at high stages.

Controlling clearances: 1. Horizontal - 159.8 (Hannibal Railroad Bridge, mile 309.8, Hannibal, Missouri).  
2. Vertical - 66.5 feet above pool stage, (Hannibal Highway Bridge, mile 309.2).

Note: In closed position, the channel span of the Hannibal Railroad Bridge provides vertical clearance of 20.7 feet above normal pool. A mooring cell is located on the right bank, mile 301.8, above Lock 22.

General: A flow-deflection dike is located upstream from the lock.

**Pool No. 24 (mile 301.2 to 273.4)**

River conditions: Controlling channel depths: about 9 feet.

Controlling velocities: about 1-1/2 miles per hour at ordinary stages; and about 4 miles per hour at high stages.

Controlling clearances: 1. Horizontal - 195.0 feet (Illinois Central Gulf Railroad Bridge, mile 282.1, Louisiana, Missouri.)

2. Vertical - 65.9 feet above high pool stage, (Mid-300 feet, Louisiana Highway Bridge, mile 283.2.)

Note: In closed position, the main channel span of the Illinois Central Gulf Railroad Bridge provides a vertical clearance of 16.0 feet above normal pool.

**Pool No. 25 (mile 273.4 to 241.4)**

River conditions: Controlling channel depths: about 9 feet.

Controlling velocities: 1-1/2 miles per hour at ordinary stages; 4 miles per hour at high stages.

Controlling bridge clearances: No bridges or aerial wires cross this pool.

**Melvin Price Pool (mile 241.4 to 200.8)**

River conditions: Controlling channel depths: about 9 feet.

Controlling velocities: about 2 miles per hour at ordinary stages; 5 miles per hour at high stages.

Controlling clearances: 1. Horizontal - 437.0 feet (Alton Highway Bridge, mile 202.7, Alton, Illinois).

2. Vertical - 55.2 feet above high water of 1844, which was 32.1 feet on the Grafton gage.

(Aerial wire crossing, mile 224.6).

General: In Melvin Price Pool, ferries operate between Illinois and Missouri for transportation of automobiles and light trucks. One at West Point Landing (mile 240.8) and the other at Fruitland Landing (mile 228.5). Both ferries operate until ice conditions cause operations to cease.

**Melvin Price Lock & Dam to Missouri River (miles 200.8 to 195.0)**

River conditions: Open river conditions exist throughout. Controlling vertical clearance is 52.4 feet above high water of 1944, which was 36 feet on Alton gage. Horizontal clearance, 110 feet, is controlled by width of locks.

General: National Marine Service Dock (mile 196.6 left bank).

Missouri River to McKinley Bridge, St. Louis (miles 195.0 to 182.5)

River conditions: The Chain of Rocks reach, mile 184.0 to 194.0, has been bypassed by Lock No. 27 chain of Rocks Canal. All traffic is directed to use the Canal and Lock No. 27. Construction of a broad-crested rock-filled dam at mile 190.3 above mouth of Ohio River, forces all commercial traffic to use the canal. Controlling horizontal clearance 348 feet (Chain of Rocks Canal Highway Bridge, mile 190.5). Controlling vertical clearance at I-270 Canal Dual Bridges, mile 190.8, provides 66.1 feet clearance above zero of Chain of Rocks gage. During severe winters, ice hampers or completely blocks traffic at the mouth of the Missouri River and in the Chain of Rocks Canal. Depths less than 9 feet may occur during extreme low water at Lower Access (mile 183.2 - 184.0).

General: Humbolt Boat Service Dock (mile 185. right bank)

**McKinley Bridge to Ohio River (miles 182.5 - 00.0)**

River Conditions: Open river conditions exist throughout. Depths less than 9 feet during extreme low water may occur at several localities, with the most serious shoals anticipated at Municipal Dock (mile 181.9 - 182.5), North Market (mile 180.6), Mouth of Meramec River (mile 161.0), Baumstarks (mile 122.5 - 123.5), Horse Island (mile 110.5), Liberty Bend (mile 95.5-96.5), Moccasin Springs (mile 66.0-67.5), Hamburg Island (mile 62.0-63.0), Devils Island (mile 57.0- 62.0), Cape Bend (mile 49.5 - 50.5), Cape LaCroix (mile 46.0 - 47.0), Burnham Island (mile 36.0 - 38.0), Buffalo Island (mile 26.0 -27.0), Scudders (mile 16.2 - 17.8), Grand Lake (mile 13.5 - 14.5), and Greenfield Bend (mile 2.8 - 4.4). Shoals are removed by dredging as they occur. The channel is well marked by lights and buoys. Current velocities vary from 2 to 7 1/2 miles per hour. Controlling bridge clearances are 460 feet horizontal at low water (channel span of Cape Girardeau Highway Bridge at Cape Girardeau, Missouri, mile 51.6) and 88.6 feet above zero of St. Louis gage, vertically, (at center of main arch) Eads Highway and Railroad Bridge, St. Louis, Missouri (mile 180.0).

General: LDC-St. Louis (mile 172.1, right bank), Barbour Boat Works Marineways (mile 162.6, right bank), Mid-West Towing Company, Inc. (mile 127.4 right bank), and Missouri Dry Dock Repair Company (mile 51.3 right bank), maintain shipbuilding, barge repair, and marineway facilities.

Information on navigation depths, sailing directions, and general navigation conditions on the Upper Mississippi River from St. Louis Harbor, mile 185.1, to Thebes, Illinois, mile 43.7, is contained in the Notice to Mariners - Channel Report issued by the Commanding Officer, U.S. Coast Guard Cutter Sumac, Foot of Iron Street, St. Louis, Missouri 63111.

## ILLINOIS WATERWAY

The Illinois Waterway connects the Mississippi River at Grafton, Illinois (mouth of Illinois River, about 218 miles above the Ohio River) with two outlets to Lake Michigan at Chicago, Illinois, and consists of the following waters:

### To 130th Street (Chicago) (Mile 327.0)

Illinois River. . . . .	272.9 miles
Des Plaines River. . . . .	17.1 miles
Chicago Sanitary and Ship Canal. . . . .	13.5 miles
Calumet-Sag Channel. . . . .	16.1 miles
Little Calumet River. . . . .	6.1 miles
Calumet River. . . . .	1.3 miles
Total*. . . . .	327.0 miles

\*Total distance from Grafton to Calumet Harbor is 333.4 miles.

### To Lake Street (Chicago) (Mile 325.6)

Illinois River. . . . .	272.9 miles
Des Plaines River. . . . .	17.1 miles
Chicago Sanitary and Ship Canal. . . . .	31.1 miles
South Branch of Chicago River. . . . .	4.5 miles
Total**. . . . .	325.6 miles

\*\*Total distance from Grafton to Chicago Harbor is 327.2 miles.

The waterway is relatively narrow, but because of good alignment, stable banks, moderate currents and absence of rapid silting, it is well adapted to navigation. Low-water channel, Grafton to just below Lockport, is generally 300 feet wide and 9 feet deep, except between miles 244.6 and 247, where channel width is 200 feet. From Lockport to Chicago Harbor, about 36 miles, the channel is generally 160 feet wide in the rock section between miles 293.5 and 307.9, and has a bottom width of 202 feet in the earth section between miles 308.0 and 320.9. The butterfly dam shown on the current navigation charts at mile 293.1 has been removed. From the junction of the Chicago Sanitary and Ship Canal and the Calumet-Sag Channel to Calumet Harbor, about 30 miles, the width is generally 225 feet. The controlling bridge clearances are above Lockport. There are eight locks in operation on the Waterway; i.e., LaGrange, Peoria, Starved Rock, Marseilles, Dresden Island, Brandon Road, Lockport, and the Thomas J. O'Brien. The locks have widths of 110 feet and lengths of 600 feet, except the Thomas J. O'Brien Lock, which is 110 feet wide and 1000 feet long.

### Lake Street (Chicago) to Lake Michigan

Chicago River Entrance and Main Branch of Chicago River.....1.6 miles

The channel in the Chicago River Entrance and the main branch of the Chicago River is approximately 250 feet wide, but 10 bascule bridges having horizontal clearances ranging from 176 to 219 feet reduce the usable width of the waterway. Both banks have been improved with revetments. There is one lock, the Chicago Lock, which has a width of 80 feet and a length of 600 feet.

Below Lockport, the channel is marked by the United States Coast Guard with lighted and unlighted shore aids and unlighted buoys. In general, the unlighted buoys between Grafton and Joliet are set near the nine-foot contour line as measured below normal pool stages and should be given a berth of not less than 50 feet. A considerable number of 5-pile timber structures and steel structures have been installed on the Illinois Waterway for the exhibition of navigation lights. These structures, which extend 20 to 25 feet above the water at normal stages, exhibit lights at elevation slightly above the extreme high-water level. Directional lights showing a narrow beam of high intensity upstream, downstream, or both, have been installed at certain locations. These lights are located in sections where they may be used as leading lights for an unusually long reach and are sometimes shown in conjunction with regular 360 degree passing lights, depending on their location. Above Lockport there are a few shore lights, and project depth of 9 feet is available for full width between retaining walls or riprapped slopes.

During December, January, and February, ice may be encountered in the Marseilles Canal and the lower river. The heaviest concentrations occur in the upper and lower Peoria Lakes, but seldom cause complete stoppage of navigation.

**Alton Pool (miles 0 - 80.2)**

River conditions: Controlling channel depths: 9 feet is low water.

Controlling velocities: about 1 1/2 miles per hour; maximum, about 3 miles per hour.

Controlling bridge clearances:

1. Horizontal - 202.0 feet (Florence Highway Bridge, mile 56.0)
2. Vertical - 41.2 feet (aerial wire crossing, mile 61.6), and 69.0 feet above normal pool (Pearl Railroad Bridge, Mile 43.2, in open position)

Note: In the closed position the channel span of the Illinois Central Gulf Railroad Bridge, mile 43.2, provides a vertical clearance of 20.0 feet above normal pool. In a closed position, Hardin Drawbridge provides 25.9 feet clearance above normal pool stage. Florence Drawbridge provides 26 feet clearance above pool stage when closed. Norfolk and Western Railroad Bridge provides 32 feet above pool level when closed.

WARNING: Wing dams extend from banks between miles 35 and 65. Dams are flooded and marked on channel by buoys.

General: For transportation of cars and trucks, a ferry operates at Deer Plain subdivision (right bank) Illinois to east bank at Pere Marquette State Park mile 3.6 and a State of Illinois ferry operates at Kampsville (mile 32.0, right bank) to connect State Highways Nos. 108 (left bank) with 100 and 96 (right bank).

**LaGrange Pool (mile 80.2 to 157.7)**

River conditions: Boats pass through the LaGrange Dam (mile 80.2) at high stages when a 9-foot depth can be maintained with wickets lowered.

Note: All navigators should familiarize themselves with paragraph (v) of the Regulations and not attempt to pass over the dam when the wickets are up.

Controlling channel depths: about 9 feet at low water.

Controlling velocities: 1.3 miles per hour; maximum, 3.4 miles per hour.

- Controlling clearances:
1. Horizontal - 150 feet (Chicago Northwestern Railroad Bridge, mile 151.2, Pekin, Illinois).
  2. Vertical - 47.7 feet above record high water (Havana Highway Bridge, mile 119.6).

**Peoria Pool (mile 157.7 to 231.0)**

River conditions: Boats pass through Peoria Dam (mile 157.7) at high stages when a 9-foot depth can be maintained with wickets lowered.

Note: All navigators should familiarize themselves with paragraph (v) of the Regulations and not attempt to pass over the dam when the wickets are up.

Controlling channel depths: about 9 feet.

- Controlling clearances:
1. Horizontal - 140 feet (Pekin and Peoria Union Railroad Bridge, mile 160.7, Peoria, Illinois).
  2. Vertical - 41.2 feet above record high water (A.T. and S.F. Railroad Bridge, mile 181.9).

General: Permanent navigation aids on concrete capped steel sheet piling cells are in place in the upper and lower Peoria Lakes. Government-owned marine ways, mile 164.5, are available only in emergencies. The Martin Oil Services, Inc., (mile 160.2) has facilities available for fueling towboats.

**Starved Rock Pool (mile 231.0 to 244.6)**

River conditions: Controlling channel depths: about 9 feet.

Controlling velocities: about 0.8 miles per hour in lower 9 miles; about 1.7 miles per hour in upper 4.5 miles.

- Controlling clearances:
1. Horizontal - 167 feet (Burlington Northern Railroad Bridge, mile 239.4).
  2. Vertical - 38.6 feet above record high water (Burlington Railroad Bridge, mile 239.4).

**Marseilles Pool (mile 244.6 to 271.5)**

River conditions: Lower 2-1/2 miles of pool consist of an artificial canal which provides a width of 200 feet and controlling depth of about 9 feet. Marseilles Dam is at upper end of canal (mile 247.0).

Controlling channel depth on pool: about 9 feet.

Controlling velocities: none in canal; above Marseilles Dam 1.6 miles per hour; maximum 2.13 miles per hour.

Controlling clearances: 1. Horizontal - 120.5 feet (Elgin, Joliet & Eastern Railway Bridge, mile 270.6).

2. Vertical - 46.9 feet above normal pool (Marseilles Highway Bridge, mile 246.9).

General: The channel is well marked with buoys. The lights in general are so placed that they may be used as leading lights.

**Dresden Island Pool (mile 271.5 to 286.0)**

River conditions: Controlling channel depths: about 9 feet.

Controlling velocities: below Treat's Island - 0.8 to 1.4 miles per hour; above Treat's Island - 0.8 to 1.7 miles per hour.

Controlling clearances: 1. Horizontal - 110 feet (Rockdale-Brandon Road Bridge, over lower approach to Brandon road Lock, mile 285.

2. Vertical - 41.8 feet above record high water (I-55 Bridge, mile 277.9).

General: Channel well marked by buoys. Shore lights generally are so located that they may be used as leading lights. Upper 1.5 miles of channel are in rock cut.

**Brandon Road Pool (mile 286.0 to 291.1)**

River conditions: Controlling channel depths: about 9 feet.

Controlling velocities: up to 2 miles per hour.

Controlling clearances: 1. Horizontal - 150 feet (5 bridges at Joliet, Illinois), mile 287.4-288.4).

2. Vertical - 43.3 feet above record high water (I-80 Bridge, mile 286.9).

Note: The channel from Brandon Road Lock to upper section of Joliet, a distance of about 2.8 miles, is confined by concrete retaining walls.

General: On right bank about 1,400 feet above the dam are 10 mooring piers which may be used for interchange of tows.

Note: The 10 piers mentioned are normally occupied by a fleeting service, or for semi-permanent dockage. Additional mooring facilities are provided on the right bank, above Chicago, Rock Island and Pacific Railway Bridge (mile 287.6), for use when waiting for bridges to open.

**Lockport Lock to Chicago Harbor (miles 291.1 - 327.2)**

This section consists of 31.1 miles of the Chicago Sanitary and Ship Canal between Lockport and South Damen Avenue, Chicago, and 6.1 miles of West Fork of South Branch, South Branch and Main Branch of the Chicago River between South Damen Avenue and Chicago Harbor.

**Lockport Lock (mile 291.1):** Depth over lower miter sill at low water is 15 feet. Depth over upper miter sill varies from 11 feet to 20 feet, depending on elevation of water surface in canal.

**Chicago Water Cannon (mile 326.8):** Between Michigan Avenue and Lake Shore Drive, the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) operates a fountain which shoots a stream of water from the north shore south across the river. This fountain attraction operates for 10 minutes per hour on the hour from 10:00 a.m. to 3:00 p.m. and from 5:00 p.m. to 11:00 p.m. from Memorial Day to October 31. On calm days this stream reaches 60 feet in height and falls to within 10 feet of the south shore.

**Chicago Harbor Lock (mile 327.2):** The controlling works and lock were constructed by the Sanitary District of Chicago to limit the amount of water taken from Lake Michigan. The river level at this point is normally maintained, by the Sanitary District, at about 0.6 feet below low water datum for Lake Michigan, pursuant to the provisions of 33 CFR 207.420.

The navigation lock is located about 40 feet south of the centerline of the river entrance channel and about 1,800 feet east of the Lake Shore Drive Bridge. The lock is 80 feet by 600 feet and has a depth of 23 feet below low water datum over the sills.

Channel conditions: Drawdown may occur when heavy rainfall is predicted. Drawdown will result in current velocities which are treacherous and at times cannot be navigated. In the Chicago River, current velocities average 0.2 to 0.4, with a maximum of 2.0 miles per hour. These velocities are increased at bridges which decrease channel cross-section.

Controlling horizontal and vertical clearances: 95 feet horizontally, A.T. and Santa Fe Railroad Bridge, mile 318.9, and 17.0 feet vertically (8-track Railroad Bridge at Chicago, Illinois, mile 320.4) above water datum. There are movable bridges across the South Branch Chicago River and main branch from mile 321.1 to 326.9. The only exception is the Dan Ryan Expressway Bridge at mile 322.9 having a fixed controlling vertical clearance of 64.4 feet. Before storm run-off channel depths may temporarily be reduced several feet and bridge clearances increased several feet due to drawdown. During and after storm run-off channel depths may temporarily be increased several feet and bridge clearances decreased several feet.

General: Shoals exist along right bank between the 16th and 9th Street highway bridges (miles 292.1 and 292.8) at Lockport, Illinois.

Navigators are warned that before, during and after heavy rainfall and run-off in the Chicago area, sluice gates located on the right bank at mile 293.2, will be open, causing a strong set-over. Special warning signals have been installed on top of the superstructure (red flasher type) and can be seen in both directions.

Navigators are warned to use caution and nominal speed when passing the many craft, either moving or moored at terminals, which use this relatively narrow channel.

**Sag Junction to Calumet Harbor - The "Sag Route" (miles 303.5 - 333.4).** (Note: Inbound navigation should be warned that vertical clearance is 19.1 feet above water datum at Illinois Central Gulf Railroad Bridge, mile 300.6).

#### **Calumet Sag Channel (mile 303.5 - 319.7)**

Channel conditions: About 10.2 miles of channel is of rock section between miles 303.5 and 313.7 and about 6 miles of channel is of earth and rock section, between miles 313.7 and 319.7. Both sections generally have a bottom width of 225 feet. Some areas are narrower due to deferred maintenance, consistent with traffic usage.

Current velocities average 0.2 to 0.4 miles per hour; maximum during heavy run-off 1.3 miles per hour. Controlling bridge clearance 188.5 feet horizontally at mile 310.7 Southwest Highway (State Highway 7) Bridge; vertically, 24.4 feet above water datum at 104th Street Bridge, (mile 307.4).

#### **Little Calumet River (miles 319.7 - 325.7)**

River conditions: There is a sharp bend in this reach at mile 320.7 to 322.2. The water level is approximately 1.5 feet below the level of Lake Michigan.

#### **Calumet River to Calumet Harbor (miles 325.7 - 333.4)**

River conditions: The portion of the Calumet River connecting the Little Calumet (mile 325.7) to Turning Basin No. 5 (mile 327.3) has a controlling horizontal clearance of 110 feet at the Thomas J. O'Brien Lock (mile 326.5). The controlling vertical clearance is 29.4 feet at the 130th Street Bridge (mile 327.0).

The portion of the Calumet River connecting Turning Basin No. 5 (mile 327.3) to Lake Michigan (mile 333.4) has a controlling horizontal clearance of 135.7 feet at the Baltimore and Ohio Railroad Bridge (mile 332.0). The controlling vertical clearance is 120.0 feet at the Conrail Central Vertical Lift Bridge (mile 332.0).

General: A temporary dike constructed across Lake Calumet from the north side of Slip No. 2 to the north side of Slip No. 3 to facilitate dredging and construction of new slips, now prevents passage of small boats into and out of the shallow areas of Lake Calumet north of the dike.

### **ILLINOIS AND MISSISSIPPI CANAL**

The Illinois and Mississippi Canal (Hennepin Canal), 75 miles long, connects the Illinois River near Bureau, Illinois, with the Mississippi River just below Rock Island, Illinois. A feeder canal extends for 29 miles from Rock River at Rock Falls, Illinois, to summit level of the main canal about 28 miles from the Illinois River. The Illinois and Mississippi Canal (Hennepin Canal) was transferred by the Corps of Engineers to the State of Illinois on 1 August 1970. The canal is now operated and maintained by the State of Illinois.

Operations of the Illinois and Mississippi Canal (Hennepin) were discontinued on 1 July 1951. This action resulted from a lack of use by commercial traffic for which it was originally constructed.

The use of the canal by pleasure craft is limited to those craft which may readily be portaged around locks or other obstructions. The locks will not be operated for craft of any type.

### **BLACK RIVER, WISCONSIN, MOUTH TO 1.4 MILES ABOVE**

See Pool No. 8, Mississippi River, page 6 of this bulletin.

## **ST. CROIX RIVER, MOUTH TO TAYLORS FALLS, MINNESOTA**

The St. Croix River enters the Mississippi River at Prescott, Wisconsin, 811.3 miles above the Ohio River. From its mouth to Stillwater, Minnesota, 24.5 miles, it is navigated by commercial carriers. Aids to navigation on the St. Croix River include 7 battery-operated shore lights, and unlighted buoys as required. From Stillwater to Taylors Falls, 27.3 miles, the river is marked with daymarks and unlighted buoys for the use of pleasure craft.

River conditions: Minimum channel width from the mouth to Stillwater, about 200 feet, with controlling depth about 9 feet. From Stillwater to Taylors Falls, minimum channel width about 50 feet, with controlling depth 1-foot at extreme low water. In low-flow periods a 5 foot and a 2-foot channel may be available to points about 5 miles and 15 miles above Stillwater, respectively. Maximum current velocity below Stillwater is about 2 miles per hour at highwater through Chicago, Milwaukee, St. Paul and Pacific Railway drawbridge near Hudson, Wisconsin (mile 17.3). Above Stillwater, velocities vary considerably as channel conditions change, at times reaching considerable intensities in limited reaches. Controlling clearances from the mouth to Stillwater (mile 24.5) are horizontally 132 feet (Hudson Railroad Bridge mile 17.5) and vertically 61.1 feet above 1965 normal pool (I-94 Dual Bridges, mile 16.1).

Pursuant to provisions of 33 CFR 667 and 117.1099, bridge openings are as follows:

### **(16) ST. CROIX RIVER, WISCONSIN AND MINNESOTA**

The draw of the Stillwater Bridge, mile 23.4 shall open on signal:

From May 15 through October 15 from Monday through Friday, except Federal holidays, as follows:

- 8 a.m. to 11 a.m. every hour on the hour
- 11 a.m. to 3 p.m. every hour and half hour
- 3 p.m. to 6 p.m. every hour on the hour
- 6 p.m. to 10 p.m. every hour and half hour
- 10 p.m. to 8 a.m. if at least two hours notice is given

On Saturdays, Sundays, and Federal holidays, as follows:

- 8 a.m. to 11 a.m. every hour and half hour
- 11 a.m. to 8 p.m. every hour on the hour
- 8 p.m. to midnight every hour and half hour
- Midnight to 8 a.m. if at least two hours notice is given

From October 16 through May 14 if at least 24 hours notice is given.

Controlling clearances between Stillwater and Taylors Falls are 102 feet horizontally at the Soo Line Bridge (mile 40.7) and 9.9 feet vertically above 1950 high water (29.2 feet above low water) at fixed highway bridge at Osceola (mile 45.0). Drawbridge at mile 40.7 has a clearance above 1950 high water of 7.6 feet (26.9 feet above low water).

Pursuant to provision of 33 CFR Section 117.667(c) and 117.1099(c) draw need not be open for passage of vessels.

General: A paved levee and municipal barge terminal (mile 22.9) are located at Stillwater, Minnesota.

## **MINNESOTA RIVER, MOUTH TO SHAKOPEE, MINNESOTA**

The Minnesota River enters the Mississippi River at St. Paul, Minnesota, 844.0 miles above the Ohio River. From the mouth to the vicinity of Shakopee, Minnesota, 21.8 miles, aids to navigation include unlighted buoys and daymarks as required.

River conditions: Controlling channel depth about 9 feet, from mouth to Savage, Minnesota, mile 14.7; from Savage, Minnesota, upstream to Shakopee, Minnesota, mile 21.8, local interests provide 9 foot depth with channel widths to 100 feet. Controlling vertical clearance from mouth to Shakopee is the Bloomington Ferry Bridge, mile 16.8, 39.0 feet above flat pool. With spans closed, S00 Line Railroad bridge, mile 14.3, provides little or no clearance above high water. Drawspan is maintained in open to navigation position and only closes for trains.

General: Small craft mooring facilities are at Cedar Avenue, right bank, mile 7.3, and Shakopee, Minnesota, mile 25.0. Cargill, Inc., terminal facilities are located at Port Cargill on the right bank, mile 13.1. Industrial terminals for barge fleetings are located on the right bank, mile 7.4; right bank, mile 10.8; and right bank, between miles 14.4 and 14.7.

### MISSISSIPPI RIVER TO LAKE MICHIGAN VIA WISCONSIN & FOX RIVERS

A possible route for canoe trips between the Mississippi River and Lake Michigan at Green Bay, Wisconsin, exists via the Wisconsin River to Portage, Wisconsin (116 miles), canal to Portage connecting the Wisconsin and Fox Rivers, canalized Fox River to DePere (156 miles) and improved Fox River to Green Bay (7 miles). The unimproved Wisconsin River may be quite difficult and hazardous to navigate. Due to tortuous channel, shifting nature of the stream bed, and high current velocity, navigation would nearly be impossible even if sufficient depth of channel existed. Vessels may be taken down the Wisconsin River during very high water at the risk of the owner. Regulation navigation on this river, even for small craft, is practically out of the question.

A lock 35 feet wide and 139 feet long, with lift of about 30 feet, provides passage through the Prairie du Sac Dam, about 26 miles below Portage. However, due to the scouring of the river bed below the dam, the lower sill of the lock is above the tailwater during much of the summer season, and due to lack of need for this facility, no change in the structure has been ordered. It is understood that occasionally small boats are transported around the dam.

There are at least 15 bridges across the river between Portage and the Mississippi River. Controlling bridge clearances are 42 feet horizontally (Chicago, Milwaukee, St. Paul & Pacific Railroad at Lone Rock, Wisconsin, mile 55.0) and 1.1 feet vertically above high water of 20.8 feet above low water (Burlington Northern Railroad at Prairie du Chien, Wisconsin, mile 1.4).

Regulations to Govern the Operation of Drawbridges Across the Wisconsin River, provide that whenever a vessel, unable to pass under a closed bridge, desires to pass through the draw, advance notice of at least 48 hours of the time the opening is required shall be given to the authorized representative of the owner of, or agency controlling, the bridge.

The canal at Portage connecting the Wisconsin River and the Fox River is no longer navigable at the Ft. Winnebago (Fox River) end.

The Fox River from Portage, mile 163.0, to 9 miles above Lake Winnebago, near the Town of Butte Des Morts on Big Lake Butte Des Morts, mile 65.0, following the water route from Green Bay, is maintained by the State of Wisconsin. Operations of the Lock at Portage, at the upper end of the connecting canal has been suspended. Water control structures have been erected on the Fox River, at Governor Bend, Montello, Grand River, Princeton, White River, and Berlin to maintain the pools above as the locks at these locations have been removed. The lock at Eureka is operated on weekends and holidays from 25 May through 30 September annually by the Berlin Boat Club, Inc., Berlin, Wisconsin. Continuous navigation on the Upper Fox River for powered pleasure craft extends only to the vicinity of Berlin.

Existing projects for the Fox River from Lake Butte Des Morts to DePere (65 miles) provide for depths of 6 feet and 18 to 24 feet from DePere to Green Bay. The latest known controlling depth from Green Bay to DePere is 8 to 20 feet and from DePere to the mouth of the Wolf River in Big Lake Butte Des Morts is 6 feet at standard low water. Locks on the canalized portion of the river vary in width from 33.6 feet to 36.6 feet and in length from 144.0 feet to 146.5 feet. Some shoaling has occurred.

The Wolf River, a tributary of the Fox River, is navigable by small craft for a distance of 47 miles from its mouth, 10 miles above Oshkosh, to the head of navigation at New London, Wisconsin.

Improvements have been made to obtain a channel of navigable width and 4 feet depth, by dredging across bars and removing snags, overhanging trees and other obstructions between the mouth of the river and New London. The channel will admit passage of boats drawing 4.0 feet to 1 mile below Partridge Crop Lake, thence 2 feet to New London. Small boats navigate the river as far as New London.

The Fox River navigation project between Menasha, Wisconsin and DePere, Wisconsin, was placed in caretaker status on October 15, 1984. The Corps of Engineers has not operated the locks since that time, and will not resume operation in the future. Lock operation on the Lower Fox River has been curtailed to only three locks. Rapids Croche Lock has been closed and cofferdammed for prevention of sea lamprey migration to Lake Winnebago to preserve the sturgeon spawning habitat. As a consequence of the disruption of through navigation between Lake Winnebago and Green Bay, the Wisconsin Department of Natural Resources operates only DePere, Little Kaukauna, and Menasha Locks. The Lower Fox River locks are being operated for the Department of Natural Resources of the State of Wisconsin by the Fox River Management Commission located at 1163 West Main Street, Appleton, Wisconsin 54911, or telephone: 920/ 738-0693.

## Tentative 2003 Lock Operation Schedule

Navigation Season  
17 May 2003 - 06 October 2003

LOCKS	DAYS PER WEEK	HOURS PER DAY
Menasha & Depere Locks	Seven (7) days	
	Monday - Thursday	10:00 AM - 10:00 PM
	Friday, Saturday,	
	Sunday and Holidays	8:00 AM - 12:00 Midnight
Little Kaukauna Lock	Five (5) Days	
	Thursday - Monday	10:00 AM - 10:00 PM
	Tuesday and Wednesday	CLOSED

### USER FEE SCHEDULE

Seasonal Unlimited Transit Permit	\$ 100.00
Daily Limited Transit Permit: For craft less than 26' in length	\$ 5.00
For craft 26' in length or longer	\$ 10.00
Passenger Fee on Commercial Excursion Vessels (per passenger)	\$ 0.40

All bridges crossing the Fox River in the reaches above Big Lake Butte Des Morts are fixed.

Controlling bridge clearances of the Fox River in the reaches below Big Lake Butte Des Morts are 35.4 feet horizontally and 54.2 vertically above standard low water. Of the 30 bridges crossing the river and canals from Big Lake Butte Des Morts through Green Bay, 9 are swing, 14 bascule, 1 lift, and 5 fixed. The fixed bridges at Appleton have vertical clearances of 54.6 and 62.9 feet above standard low water and at Kimberly - Little Chute fixed bridge has a vertical clearance of 35 feet above standard low water. The lift bridge at Kaukauna has a vertical clearance, when raised, of 65 feet above standard low water.

Advance notice of two hours is required for all openings of the George Street drawbridge across the Fox River at DePere, Wisconsin, between 6:00 p.m. and 8:00 a.m., Central Standard Time, pursuant to the provisions of 33 CFR 117.1087(b).

Controlling bridge clearances on the Wolf River are 56.5 feet horizontally and 15.0 feet vertically above standard low water. Of the 6 bridges crossing the Wolf River from its mouth to New London, 2 are bascule, 1 swing, and 3 fixed. The fixed bridge at Northport has a vertical clearance of 15.9 feet above standard low water, and the fixed bridges at New London have vertical clearances of 15.0 and 15.5 feet above standard low water. The owner of the bridge at Gills Landing (Minneapolis, St. Paul and Sault Sainte Marie Railway) requires 24-hour notice to open the draw span for passage of vessels. Opening can be requested by calling (715) 344-1910.

### REQUESTS FOR ADDITIONAL INFORMATION

If additional information is desired concerning any specific waterway or section of waterway lying wholly within the jurisdiction of a District Engineer, request for such should be made to the proper district office. If the waterway or section lies in two or more districts' jurisdiction, requests for information may be addressed to each District Engineer for data pertaining to waterways under his jurisdiction. Requests for information should be as specific as practicable and preferably should indicate the purpose for which data are desired.

**MISSISSIPPI RIVER, OHIO RIVER TO 1.2 MILES BELOW DAM NO. 22 (MILES 0-300)** Including eastern tributaries to mile 261 (except Illinois River above LaGrange Lock and Dam, mile 80.2), and western tributaries to mile 300 (except Missouri River).

District Engineer, U.S. Army Engineer District, St. Louis, 1222 Spruce Street, St. Louis, Missouri 63103-2833.

**MISSISSIPPI RIVER, 1.2 MILES BELOW DAM 22 TO 1.1 MILES BELOW DAM NO. 10 (MILES 300-614)** Including tributaries from miles 261 to 614 on east and miles 300-614 on west.

District Engineer, U.S. Army Engineer District, Rock Island, Clock Tower Building, Post Office Box 2004, Rock Island, Illinois 61204-2004.

**MISSISSIPPI RIVER, 1.1 MILES BELOW DAM NO. 10 TO LAKE ITASCA (MILE 614-SOURCE)** Including tributaries above mile 614.

District Engineer, U.S. Army Engineer District, St. Paul, 190 5<sup>th</sup> Street East, St. Paul, MN 55101-1638.

**ILLINOIS WATERWAY AND TRIBUTARY STREAMS.** From the mouth to LaGrange Lock and Dam, mile 80.2

District Engineer, U.S. Army Engineer District, St. Louis, 1222 Spruce Street, St. Louis, Missouri 63103-2833.

**ILLINOIS WATERWAY AND TRIBUTARY STREAMS Above LaGrange Lock and Dam, mile 80.2 to mile 325.6** (Lake Street, Chicago) and mile 327.0 (130th Street, Chicago).

District Engineer, U.S. Army Engineer District, Rock Island, Clock Tower Building, Post Office Box 2004, Rock Island, Illinois 61204-2004.

#### **CHICAGO RIVER ENTRANCE AND MAIN BRANCH OF CHICAGO RIVER**

District Engineer, U.S. Army Engineer District, Great Lakes and Ohio River Division, 111 North Canal Street, Suite 600, Chicago, Illinois 60606-7205.

#### **TRIBUTARIES TO LAKE SUPERIOR ADJOINING MISSISSIPPI RIVER BASIN**

Division Engineer, U.S. Army Engineer Division, Great Lakes and Ohio River Division, 111 North Canal Street, Chicago, Illinois 60606-7205.

**MISSISSIPPI RIVER, OHIO RIVER TO MOUTH** Including all tributaries except the Arkansas River, the White River above Peach Orchard Bluff, Arkansas, and the Red River above Fulton, Arkansas.

Division Engineer, U.S. Army Engineer Division, Mississippi Valley, Post Office Box 80, Vicksburg, Mississippi 39181-0080, who is also President of the Mississippi River Commission.

**HEADWATER SECTIONS OF ARKANSAS, WHITE, AND RED RIVERS** Including Arkansas River and tributaries, the White River and tributaries above Peach Orchard Bluff, Arkansas, and the Red River and tributaries above Fulton, Arkansas.

Division Engineer, U.S. Army Engineer Division, Southwestern, 1114 Commerce Street, Dallas, Texas 75242-0216.

#### **MISSOURI RIVER AND TRIBUTARIES**

Division Engineer, U.S. Army Engineer Division, Missouri River, Post Office Box 103, Downtown Station, Omaha, Nebraska 68101-0103.

#### **OHIO RIVER AND TRIBUTARIES**

Division Engineer, U.S. Army Engineer Division, Ohio River, Post Office Box 1159, Cincinnati, Ohio 45201-1159.

#### **GREAT LAKES**

Navigation charts of the Great Lakes may be procured from Distribution Branch (N/CG-33), National Ocean Service, 6501 Lafayette Avenue Riverdale, Maryland 20737-1199. A catalogue (No. 4) of National Ocean Service Charts of the Great Lakes and their prices will be furnished upon request. Coast Guard Publications for the Great Lakes area contain information on the Illinois Waterway System north of Lockport, Illinois.

#### **NOTICE TO MARINERS**

The U.S. Coast Guard Ninth District publishes the Ninth District Local Notice to Mariners weekly from mid-March to mid-December every year. It summarizes information considered essential to the safe passage of navigation. This publication covers the St. Lawrence Seaway, Great lakes, and the Illinois Waterway from mile marker 291 northward to lake Michigan. Distributed at no charge through mailing list by writing to Commander (oan), Ninth Coast Guard District, 1240 East Ninth Street, Cleveland, Ohio, 44199-2060.

#### **LIGHT LIST**

**The LIGHT LIST Volume VII**, Great Lakes (COMDTPUB P16502.7) lists lights, fog signals, buoys, daybeacons and racons on the Great Lakes. Illustrations of the U.S. Aids to Navigation System, Geographic Range tables, a Luminous Range diagram, glossary of aids to navigation terms are included. Address: Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954. Information pertaining to this publication may be obtained from: Commandant (G-NSR-3/14), U.S. Coast Guard, 2100 Second Street, S.W., Washington, DC 20593-0001.

#### **RULES OF THE ROAD**

**NAVIGATION RULES, INTERNATIONAL-INLAND (COMDTINST M16672.2a) "Rules of the Road"**. This publication contains regulations applying to navigation of the Western Rivers, Inland Waters (Great Lakes), and International Waters. Address: Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Inquiries regarding specific rules should be addressed to: Commandant (G-NSR-3/14), U.S. Coast Guard, 2100 Second Street, S.W., Washington, DC 20593-0001.

### **OTHER PUBLICATIONS**

The following publications of interest to navigators are available in this and other Federal offices:

**NORTH CENTRAL DIVISION BULLETIN NO. 1** - Describes maps and charts of the Mississippi River System suitable for navigation.

**REGULATIONS TO GOVERN THE USE, ADMINISTRATION AND NAVIGATION OF THE OHIO RIVER, MISSISSIPPI RIVER ABOVE CAIRO, ILLINOIS WATERWAY AND THEIR TRIBUTARIES.**

**RULES AND REGULATIONS TO GOVERN THE OPERATIONS OF THE DRAWBRIDGES CROSSING THE MISSISSIPPI RIVER AND ALL ITS NAVIGABLE TRIBUTARIES AND OUTLETS.** Director, Western Rivers Operation, 1222 Spruce Street, St. Louis, Missouri 63103-2832.

#### **NAVIGATION RULES - INTERNATIONAL-INLAND (COMDTINST M16672.2 (Series))**

U.S. Coast Guard, Marine Inspection Office, Suite 1215, 1222 Spruce Street, St. Louis, Missouri 63103-2835.

#### **LIGHT LIST - MISSISSIPPI RIVER SYSTEM**

The U.S. Coast Guard biannually publishes a list of aids to navigation on rivers mentioned in this bulletin. Information pertaining to this publication may be obtained from: Director, Western Rivers Operations, 1222 Spruce Street, St. Louis, Missouri 63103-2832.

#### **NOTICE TO NAVIGATION INTERESTS**

The District Engineers issue "Notice to Navigation Interests" containing data on available channel widths and depths, sailing directions, locations of shoals, snags, wrecks, and other obstructions to navigation as occasions require. Interested parties may have their name placed on the mailing list to receive such notices as issued, without charge, by making a request to the appropriate District Office listed above.

#### **NOTICE TO MARINERS - MISSISSIPPI RIVER AND TRIBUTARIES**

The U.S. Coast Guard issues "Notices to Mariners" containing data on aids to navigation, channel conditions, menaces to navigation, drawbridge closures, marine dangers, etc. Interested parties may have their name placed on the mailing list to receive such notices as issued, without charge, by making a request to the Director, Western Rivers Operations, 1222 Spruce Street, St. Louis, Missouri 63103-2832.